DIN EN 16771:2017-03 (Englis ch)

Railway applications - Infrastructure - Aluminothermic welding of grooved rails

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Information to be supplied by the railway authority 7

5 Approval procedure 7
5.1 General 7
5.2 Process identification 7
5.3 General requirements 7
5.4 Documents to be submitted with the request for approval 8
5.5 Initial compliance testing 9
5.6 Extension of initial compliance testing 11
5.7 Preparation and allocation of test welds 11

6 Re-approval following process changes 12

7 Laboratory tests 15
7.1 Visual surface examination 15
7.1.1 Ascast weld surface 15
7.1.2 Ground weld surface 15
7.2 Running surface hardness test 16
7.3 Slow bend test 16
7.4 Internal examination 17
7.4.1 Weld soundness 17
7.4.2 Fusion zone - Shape and dimension 19
7.4.3 Microscopic examination 19
7.4.4 Heat softened zone width 20
7.5 Chemical analysis 20

Annex A (informative) Steps in approval 22

Annex B (informative) Suggested sequence of laboratory tests 24

Annex C (informative) Procedure for FRY etching 25

Annex D (normative) Procedure for measurement of surface hardness 26

Annex E (normative) Procedure for slow bend test 27

Annex F (normative) Procedure for recording test weld fracture face defects 29

Annex G (normative) Ultrasonic inspection procedure on aluminothermic welds to be sectioned 30

G.1 Principle 30
G.2 Apparatus 30

G.3 Preparation of samples 30
G.4 Calibration 30
G.5 Testing 30
G.6 Reporting 31

Annex H (normative) Procedure for microscopic examination of the visible heat affected zone and fusion zone of welds 32

Annex I (normative) Procedure for measurement of the heat softened zone width 33

I.1 Measurement of hardness 33
I.2 Evaluation of hardness data 34

Bibliography 36